

NewScientist

12 FEBRUARY 2000 No2225 WEEKLY £2 US\$3.75

BRAIN GAIN

HOW TO MAKE NEW
NERVE CELLS BLOOM

FLYING IN A
WHALE'S WAKE

THE SMALLEST
EVER ABACUS

MAKING ROSES
THAT SMELL
OF COCONUTS



9 770262 407107

Latin America

Did Roman sailors shake hands with ancient Mexicans?

COULD Romans have landed in the New World before Columbus? Quite possibly, say two anthropologists, who have produced the first reliable evidence that an artefact found in Mexico is of Roman origin, and that it almost certainly arrived in the New World before the Spanish.

Roman Hristov, an independent anthropologist formerly at Southern Methodist University in Dallas, decided to investigate a black terracotta head that was first unearthed in 1933 in the Toluca Valley, approximately 65 kilometres west of Mexico City (see Map). The head, which is just a few centimetres tall, represents a bearded man and is different in style from any other known pre-Columbian artwork.

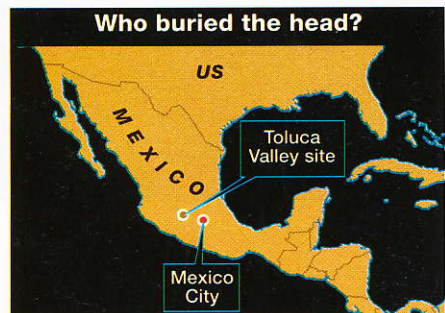
Although much had been written about the head since its discovery, Hristov found that no one actually knew where it was. With the help of Mexican anthropologist Santiago Genovés, he finally found it in 1994, locked away in a Mexico City museum.

To determine when the head was made, Hristov drilled some material from the remains of its neck. He then took the sample to be tested at the Max Planck Institute for Nuclear Physics in Heidelberg using a technique called thermoluminescence.

In this method, heat forces high-energy electrons that have accumulated in the sample over time to release their energy as light. By measuring the light released, the researchers were able to estimate that the terracotta was fired 1800 years ago.

Hristov also consulted art experts, who agreed that the head was Roman, dating roughly to AD 200. Furthermore, a review of the circumstances surrounding the head's original discovery confirmed that the head was placed in the burial ground where it was found no later than 1510, a decade before the Spanish arrived in Meso-America.

Crucially, the head was excavated from the site by professionals, says David Kelley,



Herculean quest: the ancient Romans made across the Atlantic

Bridgeman Art Library International

an archaeologist at the University of Calgary in Alberta, Canada. "This was sealed under three floors. It's as close to archaeological certainty as you can get."

Hristov believes the head is the first hard evidence of pre-Hispanic transoceanic contacts between the Old and New Worlds. But it is unclear whether it will resolve what is one of the most contentious debates in modern cultural anthropology.

"I see no reason why ancient contact is not possible," says Betty Meggers, an anthropologist at the National Museum of Natural History in Washington DC, who says that ancient Ecuadorian and Japanese pottery have identical features.

David Grove, an archaeologist at the University of Illinois in Urbana, Champaign agrees the head is Roman, but questions its significance. It could, for example, have been taken off a Roman shipwreck on the Mexican coast, which would not require significant interaction between ancient Americans and Romans, he says. There is also no evidence of ancient cultures from Europe or elsewhere making a significant mark on pre-Columbian cultures.

Jonathan Knight, San Francisco

Source: *Ancient Mesoamerica* (vol 10, p 207)

Braking point

Any rail safety system that relies on humans can fail and cause a crash, says Westinghouse Air Brake of Wilmerding, Philadelphia. The only foolproof system, it says, is for all trains to have a Global Positioning System satellite receiver which continually monitors the train's position (WO 99/52091). This information, along with the train's speed and travel direction, is transmitted by radio to all other trains in the area. Each train builds a continually changing map of the relative positions of the other trains. Whenever a potentially dangerous situation arises, both trains transmit warning signals to the respective crews. If these are ignored, a further signal applies the brakes.

Phone posts

The proliferation of base stations and transmitter masts needed to serve cellphones could make planning authorities reluctant to grant permission for new sites. The simple solution, says British cellphone company Vodafone, is to use the support posts for the CCTV cameras installed for crime control and traffic surveillance (WO 99/50926). These posts already have a power supply that could be shared by a cellphone transmitter. And the cameras are controlled by telephone signals, so underground ducts are already in place to carry phone lines to the transmitter.

Cereal thriller

Dancing cornflakes will provide endless "amusement and entertainment" at the breakfast table, or so reckons Lawrence

Glaser of Virginia in WO 99/53776. His idea is to bond together cereal flakes of different densities. Heavy flakes coated with lighter cereal will float in the milk and then sink as the coating dissolves. Make them the other way round and they'll sink and then rise. A heavy and a light flake bonded together will spin, as one side dissolves faster than the other.

Making the lot in multiple colours adds a psychedelic element.



Barry Fox